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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/593,025	09/08/2008	William S. Oakley	NSS1P004.US01	5730
45965	7590	02/22/2011	EXAMINER	
TIPS GROUP c/o Intellevate LLC P. O. BOX 52050 Minneapolis, MN 55402			ANGEBRANNDT, MARTIN J	
			ART UNIT	PAPER NUMBER
			1722	
			MAIL DATE	DELIVERY MODE
			02/22/2011	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/593,025	Applicant(s) OAKLEY, WILLIAM S.	
	Examiner Martin J. Angebrannt	Art Unit 1722	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 6/15/09, 6/24/08, 7/8/08, 9/15/06 & 9/25/08.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 7-10 and 16-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 7-10 and 16-26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Art Unit: 1722

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 7-8 are rejected under 35 U.S.C. 102(b) as being fully anticipated by Tyan et al. '340.

Tyan et al. '340 (assigned to Eastman Kodak Co.) in example 1 an indium -Tin-antimony (In-Sn-Sb) thin film deposited by sputtering onto a glass substrate. The formation of amorphous and crystalline phases is also described (6/65-7/18).

Note instant specification at page 26 describes these materials.

4. Claims 7-10 are rejected under 35 U.S.C. 102(b) as being fully anticipated by Pan et al. '458.

Pan et al. '458 (assigned to Eastman Kodak Co.) in example 1 an indium -Tin-antimony (In-Sn-Sb) thin film deposited by sputtering onto a polycarbonate substrate with a 10 nm gold layer formed directly in contact with the phase change layer (comparative). The inventive

Art Unit: 1722

example forms an oxidized layer of the phase change material between them (see table 1). The formation of amorphous and crystalline phases is also described (2/60-4/19).

Note instant specification at page 26 describes these materials together with table 2 of the instant specification (page 27)

5. Claims 7 and 9-10 are rejected under 35 U.S.C. 102(b) as being fully anticipated by Goto et al. JP 11-086738.

Goto et al. JP 11-086738 (translation attached) teaches a Magnesium oxide layer (MgO) coated upon a substrate and overcoated with a diamond or diamond like layer.

See table 2 of instant specification (page 27)

6. Claims 7 and 9-10 are rejected under 35 U.S.C. 102(b) as being fully anticipated by Futamoto et al.' 199

Futamoto et al.' 199 teaches a 10 nm Cr layer, a 5 nm MgO layer which is then overcoated with 5 nm [0082].

See table 2 of instant specification (page 27)

The intermediate product meets the claims, as they use "comprising" language and are therefore open to additional steps/layers.

7. Claims 7, 9-10, 16 and 18 are rejected under 35 U.S.C. 102(b) as being fully anticipated by Yadori et al. JP 04-092941.

Yadori et al. JP 04-092941 teaches read only memories which are based upon different secondary electron emission rates including the embodiment of figure 6, (example 4), which has a GaAs substrate, coated with 100 nm of AlGaAs and then 100 nm of GaAs using molecular

Art Unit: 1722

epitaxy. The GaAs layer is then exposed using e-beam and then dry etched to form the patterned layer. (page 3/lower columns)

8. Claims 7, 9-10,16,18,20 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yadori et al. JP 04-092941, in view of Choi et al. '542.

Choi et al. '542 teaches the use of carbon nanotubes for electron beam lithography to achieve the high resolution of electron beam lithography with a higher throughput due to the emission of each carbon nanotube corresponding to an exposed region (parallel exposures during the exposure process). See figures 5a and 5b show arrays of carbon tips and figures 3a and 3b shows the exposures using them.

It would have been obvious to one skilled in the art to modify the process of Yadori et al. JP 04-092941 by using a carbon nanotube based electron emitter to increase throughput with a reasonable expectation of success.

9. Claims 7 and 9-10 are rejected under 35 U.S.C. 102(b) as being fully anticipated by Nagao et al. '811.

Nagao et al. '811 teaches in example 1 a layer of Sb-Cs in a thickness of 10 nm and a Mo layer of 10 nm were deposited alternately to form four layers on a nickel support, this was exposed to Argon ions (see figure 1a-1c) to etch/ablate the Ni (sic Mo) layer. The use of an electron beams, a charged particle beams or a neutral particle beams to remove the uppermost layer is disclosed (2/3-27).

10. Claims 7,9-10 and 16-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nagao et al. '811.

Art Unit: 1722

It would have been obvious to one skilled in the art to modify the process of example 1 by etching using electrons, rather than an ion beams based upon the disclosure of equivalence. Further, it would have been obvious to one skilled in the art to etch both layers as in figure 1c based upon this disclosure for erasure.

11. Claims 7,9-10 and 16-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nagao et al. '811, in view of Choi et al. '542.

It would have been obvious to one skilled in the art to modify the processes rendered obvious by Nagao et al. '811 by using a carbon nanotube based electron emitter to increase throughput (writing all the data at once) with a reasonable expectation of success.

12. Claims 7 and 8 are rejected under 35 U.S.C. 102(b) as being fully anticipated by Chen et al. '117.

Chen et al. '117 teaches a GeTeAs film coated upon an Si wafer written upon using an electron beams and a non-destructive readout using the same beam at a lower intensity/power. The exposure process causes crystallization in the non-crystalline film. (5/11-60).

13. Claim 7,8 and 24-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen et al. '117, in view of Choi et al. '542.

It would have been obvious to one skilled in the art to modify the processes disclosed by Chen et al. '117 by using a carbon nanotube based electron emitter to increase throughput (writing all the data at once) with a reasonable expectation of success.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Martin J. Angebrannt whose telephone number is 571-272-1378. The examiner can normally be reached on Monday-Friday.

Art Unit: 1722

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kelly Cynthia can be reached on 571-272-1526. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Martin J Angebranndt
Primary Examiner
Art Unit 1722

/Martin J Angebranndt/
Primary Examiner, Art Unit 1722
February 17, 2011